

Ser. No. 10/002,684

Amendments to the Claims

1. (Currently amended) An annular seal having a central longitudinal axis and forming a seal between interior and exterior volumes when held under compression between opposed first and second parallel faces of respective first and second flanges, comprising:
 - a metallic first layer having first and second surfaces; and
 - a metallic second layer having first and second surfaces, integrated with the first layer by ~~adhesion between~~ along an entirety of one of the first layer second surface and second layer first surface,wherein the first layer is cold formable and the second layer has higher resistance to stress relaxation than the first layer under target thermal operating conditions.
2. (Original) The seal of claim 1 wherein the second layer extends continuously between first and second portions positioned for contacting the first and second faces and the first layer extends continuously between first and second portions respectively positioned longitudinally inward of said second layer first and second portions.
3. (Original) The seal of claim 2 wherein the first layer consists essentially of a first nickel-based superalloy and the second layer consists essentially of a second nickel-based superalloy.
4. (Original) The seal of claim 1 having a radial section of bellows-like structure.
5. (Original) The seal of claim 1 wherein only the second layer of the seal is in contact with the exterior volume.
6. (Previously presented) The seal of claim 1 wherein:
 - each of the first and second layers provides at least 10% of the radial span of a radial cross-section of the seal along a majority of a length thereof; and
 - each of the first and second layers provides at least 10% of the local longitudinal

Ser. No. 10/002,684

compressive strength of the seal along a major portion of the length thereof.

7. (Currently amended) The seal of claim 1 wherein the adhesion is direct ~~first layer consists essentially of a nickel- or cobalt-based superalloy.~~

8. (Original) The seal of claim 7 wherein the target thermal operating conditions comprise a temperature of about 1600°F (871°C) to 2000°F (1093°C).

9. (Original) The seal of claim 1 wherein:
the first layer consists essentially of a first nickel-based superalloy; and
the second layer consists essentially of a cast γ' hardened second nickel-based superalloy.

10.-20. (Canceled)

21. (Previously presented) The seal of claim 9 having a creep resistance at 982°C greater than a creep resistance of cold formed seal of like dimensions consisting essentially of the first nickel-based superalloy.

22. (Currently amended) An annular seal having a central longitudinal axis and forming a seal between interior and exterior volumes when held under compression between opposed first and second parallel faces of respective first and second flanges, comprising:

a first layer consisting essentially of a cobalt- or nickel-based superalloy and having first and second surfaces; and

a second layer consisting essentially of a nickel-based superalloy and having first and second surfaces, the first layer and second layer integrated by adhesion between the first layer second surface and the second layer first surface along an entirety of at least one of said first layer second surface and the second layer first surface.

23. (Previously presented) The seal of claim 22 wherein the second layer has higher resistance to stress relaxation than the first layer at a temperature of 1600°F to 2000°F.

Ser. No. 10/002,684

24. (Previously presented) The seal of claim 22 wherein the second layer consists essentially of a cast γ' hardened nickel-based superalloy.
25. (Previously presented) The seal of claim 22 wherein:
each of the first and second layers provides at least 10% of the radial span of a radial cross-section of the seal along a majority of a length thereof; and
each of the first and second layers provides at least 10% of the local longitudinal compressive strength of the seal along a major portion of the length thereof.
26. (Previously presented) The seal of claim 22 wherein:
the first layer first and second surfaces are substantially inner and outer surfaces, respectively, and
the second layer first and second surfaces are substantially inner and outer surfaces, respectively.
27. (Previously presented) The seal of claim 22 wherein:
a major portion of the second surface of the second layer constitutes an external surface of the seal.
28. (Withdrawn) The seal of claim 22 wherein:
the second layer has uneven thickness.
29. (Withdrawn) The seal of claim 28 wherein:
the second layer thickness is less near first and second seal ends than away from said first and second seal ends.
30. (Previously presented) The seal of claim 1 wherein:
the first layer first and second surfaces are substantially inner and outer surfaces, respectively, and

Ser. No. 10/002,684

the second layer first and second surfaces are substantially inner and outer surfaces, respectively.

31. (Previously presented) The seal of claim 1 wherein:

a major portion of the second surface of the second layer constitutes an external surface of the seal.